

MULTIMEDIA



UNIVERSITY

STUDENT ID NO

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# MULTIMEDIA UNIVERSITY

## FINAL EXAMINATION

TRIMESTER 1, 2015/2016

### **TSE 2231– SOFTWARE ENGINEERING FUNDAMENTALS**

(All sections / Groups)

15 OCTOBER 2015  
9.00am – 11.00am  
(2 Hours)

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#### INSTRUCTIONS TO STUDENT

1. This Question paper consists of 6 pages including cover page with 2 Sections.
2. Answer all questions in **SECTION A**.
3. Answer **FOUR** out of **FIVE** questions in **SECTION B**. All questions carry equal marks and the distribution of the marks for each question is given.
4. Please write all your answers in the Answer Booklet provided.

**SECTION A: MULTIPLE CHOICE QUESTIONS**

*(Answer all the 20 questions in this section, 1 mark for each question)*

**Continued .....**

12. Four important characteristics of a software product are
  - A. dependability, usability, reliability, robustness
  - B. maintainability, dependability, efficiency, usability
  - C. supportability, maintainability, visibility, rapidity
  - D. None above
13. Some disadvantages of ad hoc development are:
  - A. Some important actions may go ignored.
  - B. It is easy to learn.
  - C. It is clear when to start and stop each task.
  - D. It scales well to multiple people.
14. Software feasibility is based on which of the following
  - A. business and marketing concerns
  - B. scope, constraints, market
  - C. technology, finance, time, resources
  - D. technical prowess of the developers
15. The critical path is the sequence of project activities which
  - A. Have the shortest duration
  - B. Can be ignored as unimportant
  - C. Can be completed in any order
  - D. Add up to the longest overall duration
16. LOC-based estimation techniques require problem decomposition based on
  - A. information domain values
  - B. project schedule
  - C. software functions
  - D. process activities
17. Which of the following is not one of the objectives of WebApp content testing?
  - A. Find organizational or structure errors
  - B. Identify linking errors
  - C. Uncover semantic errors
  - D. Uncover syntactic errors
18. Which approach(es) to user task analysis can be useful in user interface design?
  - A. have users indicate their preferences on questionnaires
  - B. doesn't rely on the judgement of experienced programmers
  - C. study existing computer-based solutions
  - D. observe users performing tasks manually
19. Which of the following is likely to be the most expensive cost of quality?

A. Appraisal costs	C. Internal failure costs
B. External failure costs	D. Prevention costs

Continued .....

20. Which of the following is not one of the context-free questions that would be used during project inception?

- A. What will be the economic benefit from a good solution?
- B. Who is behind the request for work?
- C. Who will use the solution?
- D. Who will pay for the work?

Continued .....

**SECTION B (40 marks)***(Answer FOUR out of FIVE questions in this section)***QUESTION 1**

a) Define software engineering . (3 marks)

b) How do software characteristics differ from hardware characteristics? (3 marks)

c) What are **FOUR (4)** barriers of introducing agile methods into large companies? (4 marks)

**QUESTION 2**

a) What are the **TWO (2)** advantages of using a standard format to specify requirements? (2 marks)

b) Using the information in Table 1, assuming that the project team will work a standard working week (5 working days in 1 week) and that all tasks will start as soon as possible

**Table 1**

Task	Description	Duration	Predecessor/s
A	Requirement Analysis	5	
B	Systems Design	15	A
C	Programming	25	B
D	Telecoms	15	B
E	Hardware Installation	30	B
F	Integration	10	C, D
G	System Testing	10	E, F
H	Training/Support	5	G
I	Go-Live	5	H

i. Determine the critical path of the project (4 marks)

ii. Calculate the planned duration of the project in weeks. (2 marks)

iii. Identify any non-critical tasks and the float (free slack) on each. (2 marks)

**Continued .....**

**QUESTION 3**

- a) Briefly describe **TWO (2)** advantages of Gantt charts. (2 marks)
- b) What are the **FOUR (4)** guidelines for good display design? (2 marks)
- c) ABC Training School (ATS) has contracted you to create a conceptual model whose application will meet the expected database requirements for its training program. ATS has 12 instructors and can handle up to 30 trainees per class. ATS offers five "advanced technology" courses, each of which may generate several classes. If a class has fewer than 10 trainees in it, it will be canceled. It is, therefore, possible for a course not to generate any classes during a session. Each class is taught by one instructor. Each instructor may teach up to two classes or may be assigned to do research. Each trainee may take up to two classes per session. Draw the E R diagram for ATS. (6 marks)

**QUESTION 4**

- a) The definition of verification and validation encompasses many activities that we refer to as software quality assurance. In this sense, explain what is software validation and verification? (4 marks)
- b) Differentiate **THREE (3)** differences between functional testing and structural testing. (3 marks)
- c) Draw a simple Use Case diagram showing **THREE (3)** main functions of an ATM system. (3 marks)

**QUESTION 5**

- a) Describe **THREE (3)** factors that should be taken into account by engineers during the process of building a release of a large software system. (3 marks)
- b) A well designed user interface does not tax the user's memory. Whenever possible, the system should always "remember" pertinent information and assist the user with an interaction scenario that helps recall. Suggest **FOUR (4)** approaches that enable an interface to reduce the user's memory load with appropriate examples. (4 marks)
- c) Do you think that configuration testing should be carried out for WebApps? (3 marks)

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